



STATE OF DELAWARE
EXECUTIVE DEPARTMENT
OFFICE OF MANAGEMENT AND BUDGET
STATE PLANNING COORDINATION

March 15, 2006

Bill Stephens
Stephens Environmental Consulting, Inc.
229 Lake Drive
Newark, DE 19702

RE: PLUS review – PLUS 2006-02-10; Preserve on the Broad Creek

Dear Mr. Stephens:

Thank you for meeting with State agency planners on February 22, 2006 to discuss the proposed plans for the Preserve on the Broad Creek project to be located south of Road 78A, and north of Broad Creek.

According to the information received, you are seeking site plan approval of 56.7 acres for a 274 unit subdivision in Level 2. It is noted that we reviewed this site previously as a campground expansion under Sussex County (PLUS 2005-09-02)

Please note that changes to the plan, other than those suggested in this letter, could result in additional comments from the State. Additionally, these comments reflect only issues that are the responsibility of the agencies represented at the meeting. The developers will also need to comply with any Federal, State and local regulations regarding this property. We also note that as Laurel is the governing authority over this land, the developers will need to comply with any and all regulations/restrictions set forth by the Town.

Executive Summary

The following section includes some site specific highlights from the agency comments found in this letter. This summary is provided for your convenience and reference. The

full text of this letter represents the official state response to this project. ***Our office notes that the applicants are responsible for reading and responding to this letter and all comments contained within it in their entirety.***

State Strategies/Project Location

- This is located in an Investment Level 1 and 2 area according to the *Strategies for State Policies and Spending* and has been recently annexed into the Town of Laurel. In these areas State policies support development that is consistent with the comprehensive plan.

Street Design and Transportation

- Old Sailor's Path is classified as a local road and has a 50-foot wide right-of-way according to the plan presented at the meeting. DelDOT's policy is to require dedication of sufficient land to provide a minimum right-of-way width of 30 feet from the centerline on local roads. Therefore they will require right-of-way dedication along the frontage to provide any additional width needed from this project.
- DelDOT will also require that a paved multi-modal path, located in a 15-foot wide permanent easement, be provided across the frontage of the site.
- DelDOT recommends that sidewalks and multi-modal paths be required throughout the site. If a permit can be obtained for the stream crossing, one obvious location for an off-road path would be to connect the longer two of the three cul-de-sacs near the west edge of the site.
- In the southeast corner of the site, there is a 90-degree turn proposed in one of the streets. They understand from the PLUS meeting that this would be a tee intersection, with the north-south street continued south as an existing private driveway. The topography of the site makes it difficult to provide a smooth curve joining the north-south and east-west streets. DelDOT recommends that the intersection be signed as an all-way stop with an exception for southbound right-turn movement.

Natural and Cultural Resources

- PLUS application materials indicate that wetlands have been delineated (presumably a field delineation). This delineation should be verified by the Army

Corps of Engineers through the Jurisdictional Determination process. A 100-foot vegetated buffer should be implemented from the edge of the wetland complex. The developer should note that both DNREC and Army Corps of Engineers discourage allowing lot lines to contain wetlands to minimize potential cumulative impacts resulting from unauthorized and/or illegal activities and disturbances that can be caused by homeowners.

- It should also be noted that this parcel contains a sensitive headwater riparian wetlands associated with Broad Creek and the greater Chesapeake Bay basin. Moreover, this area of Broad Creek is particularly sensitive because it harbors the somewhat rare and endangered Atlantic white cedar and bald cypress wetland plant communities. These plant communities are often refugia for a number of globally rare or federally threatened herbaceous plant species. Such wetland plant communities are considered to have high functional and/or resource values sufficient to warrant additional protective efforts. Research by Castelle (1994) has shown that a buffer width of at least 300 feet is necessary for protecting the high species diversity in high value wetlands. Since the Watershed Assessment Section strongly supports the notion that the buffer width should be assigned on the basis of the protective efforts necessary to support water and habitat quality, we are adopting the 300-foot buffer width as the recommended minimum buffer width adjacent to such wetlands. **It is strongly recommended that the State's Natural Heritage Program be allowed to locate and inventory the existing plant communities so as to ensure that the appropriate buffering distances are maintained. Otherwise, as stated previously, a 100-foot minimum buffer width is still the recommended buffer width from all other wetlands and water bodies.**
- Based on a preliminary evaluation of this project using this model (using information submitted and some of our own assumptions in lieu of some missing information) the development as currently conceived, does **not** meet the Nanticoke River watershed TMDL nutrient reduction requirements for nitrogen and phosphorus. Because DNREC, as noted below, feels that information was missing that would allow them to accurately determine the impacts of this development on the TMDL, DNREC suggest that the applicant verify their project's compliance (after correcting all our concerns and/or using realistic assumptions) with the specified TMDL loading rates by running the model themselves. Please contact Lyle Jones or John Martin of Watershed Section at 739-9939 for the acceptable model protocol.
- The DNREC Water Supply Section has reviewed the above referenced PLUS project and determined that it does fall partially within a wellhead protection area

(see attached map). Wellhead protection areas are surface and subsurface areas surrounding a public water supply well where the quantity and quality of ground water moving toward such wells may be adversely affected by land use activities or impervious cover. The DNREC Water Supply Section recommends that the portion of the new development within the wellhead protection area not exceed 20% impervious cover. Portions of the property are within the 100-year floodplain.

- It is recommended that construction be limited to those areas outside of the 100-year floodplain and on land above the base flood elevation for this site.
- Common Nighthawks are ground nesting birds that nest in open wooded areas from May to July. To minimize potential impacts to this species, they recommend that impacts to the wooded area not occur during this time.
- The southern portion of this development infringes upon the integrity of a Bald Cypress community. This community should be delineated and left undisturbed with at least a 100-foot (preferably 300-foot) buffer between its boundaries and development features.
- It is unclear from the application how much of a buffer is going to remain along the creek, but there is both infrastructure, housing units, and amenities within this forested buffer, which contains a Bald Cypress wetland. Due to the environmentally sensitive nature of the Nanticoke watershed and rare species that could be impacted, the forested riparian buffer should include the Bald Cypress community and an additional 100-foot upland buffer. This will aid in protecting rare species, provide habitat for forest dependent species, as well as protect water quality. Further, this buffer zone should be placed in permanent conservation so that future clearing is less likely to occur.
- The application states that only 5 acres of trees are going to be removed, three acres are going to be reforested with a resulting net loss of 0-1 acres. This is clearly a gross underestimate as there are over 100 units, a community center, and swimming pool within the existing wooded area. It appears that a portion of the three acres of 'reforestation' are going to serve in the capacity of a stormwater management area and as a buffer along the property of an adjacent landowner. This is hardly comparable to the existing forest that will be lost. The Nanticoke River watershed is one of the most diverse in the state and requires a more environmentally sensitive design than the current plan.

The following are a complete list of comments received by State agencies:

Office of State Planning Coordination – Contact: Dorothy Morris 739-3090

This is located in an Investment Level 1 and 2 areas according to the *Strategies for State Policies and Spending* and has been recently annexed into the Town of Laurel. In these areas State policies support development that is consistent with the comprehensive plan.

As currently designed, it seems somewhat disconnected from the Town. The developer should look for more opportunities to connect as part of the Town. One potential way to do this would be to work with the Town to provide a public connection to the Broad Creek Greenway identified in the Town's comprehensive plan.

If there is development proposed within the 100-year floodplain, this development should be moved out of the floodplain.

Division of Historic and Cultural Affairs – Contact: Alice Guerrant 739-5685

This parcel was previously reviewed. As DHCA commented then, nothing is known within this parcel. There are three adjacent historic properties, a 19th-c. agricultural complex (S-5971), an early-20th-c. agricultural complex (S-5970), and a late-19th-c. to early-20th-c. dwelling (S-5969). The 1915 Seaford US Geological Survey topographic map shows a building in the north central part of this parcel. There could be a historic archaeological site associated with this. There are also areas of moderate potential for prehistoric archaeological sites in the wooded area.

Because of the change in plans, this project will have considerably more of an adverse effect on the historic properties and potential archaeological sites than the previous campground project. The visual setting of the agricultural complexes will be completely changed. The areas that have the greatest potential for archaeological sites will be disturbed.

Small, rural, family cemeteries often are found in relation to historic farm complexes, such as the one noted on the 1915 map, usually a good distance behind or to the side of the house. The developer should be aware of Delaware's Unmarked Human Remains Act of 1987, which governs the discovery and disposition of such remains. The unexpected discovery of unmarked human remains during construction can result in significant delays while the process is carried out. We will be happy to discuss these issues with the developer; the contact person for this program is Faye Stocum, 302-736-7400.

If a Corps of Engineers permit is required for this development, the owner/developer will then be required to consult with this office under Section 106 of the National Historic Preservation Act of 1966 (as amended) and may be required to undertake archaeological testing. The DHCA will be happy to help the owner/developer through this process.

If a permit is not required, we would appreciate the opportunity to look for archaeological sites and learn something about their location, nature, and extent prior to any ground-disturbing activities. They ask that landscaping be included along the northern edge of the parcel to block the view of this development from the adjacent historic properties.

Department of Transportation – Contact: Bill Brockenbrough 760-2109

- 1) Old Sailor's Path is classified as a local road and has a 50-foot wide right-of-way according to the plan presented at the meeting. DelDOT's policy is to require dedication of sufficient land to provide a minimum right-of-way width of 30 feet from the centerline on local roads. Therefore they will require right-of-way dedication along the frontage to provide any additional width needed from this project.
- 2) DelDOT will also require that a paved multi-modal path, located in a 15-foot wide permanent easement, be provided across the frontage of the site.
- 3) DelDOT was pleased to learn at the PLUS meeting that a trail network is proposed throughout the site. They recommend that sidewalks and multi-modal paths be required throughout the site. If a permit can be obtained for the stream crossing, one obvious location for an off-road path would be to connect the longer two of the three cul-de-sacs near the west edge of the site.
- 4) In the southeast corner of the site, there is a 90-degree turn proposed in one of the streets. They understand from the PLUS meeting that this would be a tee intersection, with the north-south street continued south as an existing private driveway. The topography of the site makes it difficult to provide a smooth curve joining the north-south and east-west streets. DelDOT recommends that the intersection be signed as an all-way stop with an exception for southbound right-turn movement.
- 5) Improvements to Old Sailor's Path may be required of the developer. These improvements, which could include repaving and widening from the site entrances to Woodland Ferry Road (Sussex Road 78), will be addressed through the entrance approval process.

- 6) The developer's site engineer should contact the DelDOT Subdivision Manager for Sussex County, Mr. John Fiori, regarding our specific requirements for access. Mr. Fiori may be reached at (302) 760-2260.

**The Department of Natural Resources and Environmental Control – Contact:
Kevin Coyle 739-9071**

Green Infrastructure

Portions or all of the lands associated with this proposal are within the Livable Delaware Green Infrastructure area established under Governor Minner's Executive Order #61 that represents a network of ecologically important natural resource lands of special state conservation interest.

Green infrastructure is defined as Delaware's natural life support system of parks and preserves, woodlands and wildlife areas, wetlands and waterways, productive agricultural and forest land, greenways, cultural, historic and recreational sites and other natural areas all with conservation value. Preserving Delaware's Green Infrastructure network will support and enhance biodiversity and functional ecosystems, protect native plant and animal species, improve air and water quality, prevent flooding, lessen the disruption to natural landscapes, provide opportunities for profitable farming and forestry enterprises, limit invasive species, and foster ecotourism.

Voluntary stewardship by private landowners is essential to green infrastructure conservation in Delaware, since approximately 80 percent of the State's land base is in private hands. It is in that spirit of stewardship that the Department appeals to the landowner and development team to protect sensitive resources through an appropriate site design.

Soils

According to the Sussex County soil survey Evesboro, Osier, Tidal Marsh, and Johnston were mapped in the immediate vicinity of the proposed construction. Evesboro is an excessively well-drained upland soil that has limitations associated with rapid permeability. Some of the Evesboro mapping units may have limitations associated with steep slopes (10-15%), and should be avoided. Osier is a poorly-drained wetland associated (hydric) soil that has severe limitations for development. Tidal Marsh and Johnston are very poorly-drained wetland associated (hydric) soils associated with riparian areas and floodplains that have the highest severity level for development.

Wetlands

According to the Statewide Wetland Mapping Project (SWMP) maps, tidally-influenced palustrine forested and riverine emergent wetlands were mapped extensively along the southern boundary of this parcel, while nontidal palustrine wetlands were mapped in the northeast and southeast corners of subject parcel. These wetlands provide water quality benefits, attenuate flooding (important when building in the floodplain) and provide important habitat for plants and wildlife.

A 100-foot vegetated buffer should be implemented from the edge of the wetland complex. The developer should note that both DNREC and Army Corps of Engineers discourage allowing lot lines to contain wetlands to minimize potential cumulative impacts resulting from unauthorized and/or illegal activities and disturbances that can be caused by homeowners.

PLUS application materials indicate that wetlands have been delineated (presumably a field delineation). This delineation should be verified by the Army Corps of Engineers through the Jurisdictional Determination process. Please note that impacts to palustrine wetlands are regulated by the Army Corps of Engineers through Section 404 of the Clean Water Act. In situations where the applicant believes that the delineated wetlands on their parcel are nonjurisdictional isolated wetlands, the Corps must be contacted to make the final jurisdictional assessment. They can be reached by phone at 736-9763.

In addition, individual 404 permits and certain Nationwide Permits from the Army Corps of Engineers also require 401 Water Quality Certification from the DNREC Wetland and Subaqueous Land Section and Coastal Zone Federal Consistency Certification from the DNREC Division of Soil and Water Conservation, Delaware Coastal Programs Section. Each of these certifications represents a separate permitting process.

To find out more about permitting requirements, the applicant is encouraged to attend a Joint Permit Process Meeting. These meetings are held monthly and are attended by federal and state resource agencies responsible for wetland permitting. Contact Denise Rawding at (302) 739-9943 to schedule a meeting.

It should also be noted that this parcel contains a sensitive headwater riparian wetlands associated with Broad Creek and the greater Chesapeake Bay basin. Headwater streams are important for the protection of water quality and the maintenance/integrity of the ecological functions throughout the length of the stream, including the floodplain system and/or water bodies downstream. Moreover, this area of Broad Creek is particularly sensitive because it harbors the somewhat rare and endangered Atlantic white cedar and bald cypress wetland plant communities. These plant communities are

often refugia for a number of globally rare or federally threatened herbaceous plant species. Such wetland plant communities are considered to have high functional and/or resource values sufficient to warrant additional protective efforts. Research by Castelle (1994) has shown that a buffer width of at least 300 feet is necessary for protecting the high species diversity in high value wetlands. Since the Watershed Assessment Section strongly supports the notion that the buffer width should be assigned on the basis of the protective efforts necessary to support water and habitat quality, we are adopting the 300-foot buffer width as the recommended minimum buffer width adjacent to such wetlands. It is strongly recommended that the State's Natural Heritage Program be allowed to locate and inventory the existing plant communities so as to ensure that the appropriate buffering distances are maintained. **Otherwise, as stated previously, a 100-foot minimum buffer width is still the recommended buffer width from all other wetlands and water bodies.**

Impervious Cover

Research has consistently shown that once a watershed exceeds a threshold of 10 percent imperviousness, water and habitat quality irreversibly decline. Based on analyses of 2002 aerial photography by the University of Delaware, the Broad Creek watershed, at that time, had about 6.4 percent impervious cover. Although this data is about 4 years old and likely an underestimate, it illustrates the importance of a proactive strategy to mitigate for predictable and likely cumulative environmental impacts. Since the amount of imperviousness generated by this project will be much higher than the desirable watershed threshold of 10 percent, the applicant is strongly advised to pursue best management practices (BMPs) that mitigate or reduce some of the most likely adverse impacts. Using pervious paving materials ("pervious pavers") in lieu of asphalt or concrete in conjunction with an increase in forest cover preservation or additional tree plantings are examples of practical BMPs that could easily be implemented to reduce surface imperviousness.

Based on a review of the submitted PLUS application, the applicant projects that only about 20% of this parcel will be rendered impervious following this parcel's development; however, this figure appears to be a significant underestimate given the scope and density of this project. The applicant should be made aware that all forms of constructed surface imperviousness (i.e., rooftops, sidewalks and roads) should be included in the impervious surface calculation; otherwise, an inaccurate assessment of this project's actual environmental impacts will result. It is strongly recommended that this figure be recalculated in a manner that more accurately reflects all constructed forms of post-development construction impacts.

ERES Waters

This project is located adjacent to receiving waters of the Chesapeake Bay designated as waters having Exceptional Recreational or Ecological Significance (ERES). ERES waters are recognized as special assets of the State, and shall be protected and/ or restored, to the maximum extent practicable, to their natural condition. Provisions in Section 5.6 of Delaware's "Surface Water Quality Standards" (as amended July 11, 2004), specify that all designated ERES waters and receiving tributaries develop a "pollution control strategy" to reduce non-point sources of pollutants through implementation of Best Management Practices (BMPs). Best Management Practices as defined in subsection 5.6.3.5 of this section, expressly authorizes the Department to provide standards for controlling the addition of pollutants and reducing them to the greatest degree achievable and, where practicable, implementation of a standard requiring no discharge of pollutants.

TMDLs

Total Maximum Daily Loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the Broad Creek. A TMDL is the maximum level of pollution allowed for a given pollutant below which a "water quality limited waterbody" can assimilate and still meet water quality standards to the extent necessary to support use goals such as, swimming, fishing, drinking water and shell fish harvesting. In the Broad Creek watershed, "target-rate-reductions" of 30 and 50 percent will be required for nitrogen and phosphorus, respectively.

Compliance with TMDLs through the PCS

In the Broad Creek watershed, the primary source of water quality impairment is associated with nutrient runoff from agricultural and/or residential development. In order to mitigate for the aforementioned impairments, a post-development TMDL reduction level of 30 and 50 percent will be required for nitrogen and phosphorus, respectively. Compliance with the post-development TMDL nutrient loading reduction requirements will be assessed via nutrient budget protocol, a computer-based model that quantifies post-development nutrient loading under a variety of land use scenarios in combination with a variety (or absence) of BMP types and intensities. This post-development loading rate is then compared with the pre-development loading rate as a means to assess whether the project meets the acceptable TMDL reduction levels. Based on a preliminary evaluation of this project using this model (using information submitted and some of our own assumptions in lieu of some missing information) the development as currently conceived, does **not** meet the Nanticoke River watershed TMDL nutrient reduction requirements for nitrogen and phosphorus. The applicant is strongly advised to consider

the use of appropriate BMPs and Best Available Technologies (BATs) to ensure compliance. Examples of BMPs or BATs that should be used to significantly reduce nutrient loading from this project include practices that prevent or mitigate surface imperviousness, maintenance of recommended wetland and waterbody buffer widths, and utilization of innovative or “green-technology” stormwater methodologies.

The applicant should be made aware that the accurate assessment of a given project’s environmental impacts and its ability to meet the prescribed TMDL load reductions is highly dependent on an accurate accounting and inventory of all land uses, natural resources and their proposed management. Since it was apparent that some of this information was omitted, incomplete, or inaccurate, it is more than likely that aforementioned nutrient budget calculation (via the nutrient budget protocol) actually understates this project’s environmental impacts. It is the applicant’s responsibility to provide accurate and complete information so that a realistic environmental assessment can be made. The following are concerns we feel that need to be addressed before a reasonably accurate nutrient budget can be calculated:

- 1) The reported impervious cover figure (i.e., 20%) appears to understate the likely amount of post-development surface imperviousness generated from this project. This figure should be recalculated in a manner that more realistically accounts for all forms of constructed surface imperviousness (roads, sidewalks, and rooftops).
- 2) Stormwater design methodologies and number were not clear from the information submitted.
- 3) Open space acreage was not disclosed.
- 4) Since tidal wetlands are found on this site, and the DNREC is responsible for tidal wetlands delineations in Delaware, the applicant must contact DNREC Wetlands Section to verify their jurisdictional extent. Also, we have reviewed the wetlands delineation (by Stephens Environmental) and still do not understand how the wetland acreage figures (i.e., from the PLUS application) were assessed. It is also apparent that this wetlands delineation was not approved by the USACOE. The applicant is also strongly encouraged to seek a jurisdictional delineation by seeking USACOE approval.
- 5) Wetland and waterbody buffer widths were not specified.

DRNEC then suggest that the applicant verify their project’s compliance (after correcting all our concerns and/or using realistic assumptions) with the specified TMDL loading

rates by running the model themselves. As mentioned previously, they strongly recommend that the applicant consider the use of the aforementioned BMPs to help ensure compliance with the required TMDLs. Please contact Lyle Jones or John Martin of Watershed Section at 739-9939 for the acceptable model protocol.

Water Supply

The information provided indicates that the Town of Laurel will provide water to the proposed projects through a central public water system. DNREC and PSC files reflect that Town of Laurel does not currently hold a certificate of public convenience and necessity (CPCN) to provide public water in these areas. If this parcel is annexed into the Town of Laurel, the Town will need to contact the Public Service Commission with notification of the annexation. If the Town intends to serve this parcel without annexing, they will need to file an application for a CPCN with the Public Service Commission, if they have not done so already. Information on CPCN requirements and applications can be obtained by contacting the Public Service Commission at 302-739-4247.

Should dewatering points be needed during any phase of construction, a dewatering well construction permit must be obtained from the Water Supply Section prior to construction of the well points. In addition, a water allocation permit will be needed if the pumping rate will exceed 50,000 gallons per day at any time during operation.

All well permit applications must be prepared and signed by licensed water well contractors, and only licensed well drillers may construct the wells. Please factor in the necessary time for processing the well permit applications into the construction schedule. Dewatering well permit applications typically take approximately four weeks to process, which allows the necessary time for technical review and advertising.

Should you have any questions concerning these comments, please contact Rick Rios at 302-739-9944.

Water Resource Protection Areas

The DNREC Water Supply Section has reviewed the above referenced PLUS project and determined that it does fall partially within a wellhead protection area (see attached map). Wellhead protection areas are surface and subsurface areas surrounding a public water supply well where the quantity and quality of ground water moving toward such wells may be adversely affected by land use activities or impervious cover.

The DNREC Water Supply Section recommends that the portion of the new development within the wellhead protection area not exceed 20% impervious cover. Some allowance

for augmenting ground-water recharge should be considered if the impervious cover exceeds 20% but is less than 50% of that portion of the parcel within this area. However, the development should not exceed 50% regardless. A water balance calculation will be necessary to determine the quantity of clean water to be recharged via a recharge basin. The purpose of an impervious cover threshold is to minimize loss of recharge (and associated increases in storm water) and protect the quality and quantity of ground water and surface water supplies.

The proposed development would change the impervious over from 2.2% to approximately 20%. These numbers were provided by developer on the PLUS application. Ideally, relocating any open space areas to the part of the parcel within the wellhead protection area would decrease the total impervious area in the wellhead protection area. Augmenting the ground-water recharge with clean rooftop run-off systems are another alternative to reducing the total impervious cover.

In addition, because the wellhead protection area the source of public drinking water, the storage of hazardous substances or wastes should not be allowed within the area unless specific approval is obtained from the relevant state, federal, or local program.

For more information refer to the Final Source Water Protection Guidance Manual for the Local Governments of Delaware

<http://www.wr.udel.edu/swaphome/phase2/SWPguidancemanual.html>

and

Ground-Water Recharge Design Methodology

http://www.wr.udel.edu/swaphome/phase2/Publications/swapp_manual_final/swapp_guidance_manual_supp_1_2005_05_02.pdf.

For more information contact John Barndt at (302) 739-9945.

Sediment and Erosion Control/Stormwater Management

The Sediment and Stormwater plan review and approval as well as construction inspection will be coordinated through Sussex Conservation District.

Green Technology BMPs including bioretention, biofiltration, infiltration and filter strips must be given first consideration in stormwater quality management prior to ponds.

This site may be eligible for a waiver of stormwater quantity management if it can provide a non-erosive conveyance to tidal water. If stormwater quantity management is

not required, ponds may not be necessary at all and all stormwater management can be accomplished using Green Technology BMPs and a conservation design approach.

Each stormwater management facility, including ponds, swales, bioretention facilities, and infiltration facilities should have an adequate outlet for release of stormwater.

Floodplains

Portions of the property are within the 100-year floodplain. It is recommended that construction be limited to those areas outside of the 100-year floodplain and on land above the base flood elevation for this site.

Rare Species and Buffers

DNREC has not surveyed these parcels, therefore, it is unknown if there are state-rare or federally listed plants, animals or natural communities at this project site. However, we do have records of rare species within Broad Creek and in the vicinity of this project that could be affected by run-off from construction activities if adequate buffers are not maintained along the creek. There are also recreationally and commercially important fish species that inhabit and spawn within the creek system as well. DNREC has records of the following State-rare species or communities:

Animals: *Chordeiles minor* (Common Nighthawk), *Elliptio fisheriana* (Northern lance), *Anodonta imbecilis* (alewife floater), *Enneacanthus chaetodon* (blackbanded sunfish), *Moxostoma macrolepidotum* (shorthead redhorse)

Community: *Taxodium distichum* (Bald Cypress wetlands)

Common Nighthawks are ground nesting birds that nest in open wooded areas from May to July. To minimize potential impacts to this species, they recommend that impacts to the wooded area not occur during this time.

Northern lance and alewife floater are freshwater mussels that are of conservation concern in Delaware. The Nanticoke River watershed is the most diverse in the State with regard to freshwater mussels. Because freshwater mussels are filter feeders, and have a long lifespan and complex life cycle, they are susceptible to poor water quality. Blackbanded sunfish and shorthead redhorse are fish species that spawn in the shallow areas of the creek, often in areas with vegetation.

The southern portion of this development infringes upon the integrity of a Bald Cypress community. This community should be delineated and left undisturbed with at least a

100-foot (preferably 300-foot) buffer between its boundaries and development features. This community is especially important in terms of defining Delaware's natural heritage as it is a southern species at the extreme northern limit of its range. It is important to preserve species that are at the edge of their range because they are adapted to living in a different environment than those in the center. This helps maintain the genetic diversity of the species.

Riparian Buffer

It is unclear from the application how much of a buffer is going to remain along the creek, but there is infrastructure, housing units, and amenities within this forested buffer, which contains a Bald Cypress wetland. Due to the environmentally sensitive nature of the Nanticoke watershed and rare species that could be impacted, the forested riparian buffer should include the Bald Cypress community and an additional 100-foot upland buffer. This will aid in protecting rare species, provide habitat for forest dependent species, as well as protect water quality. Further, this buffer zone should be placed in permanent conservation so that future clearing is less likely to occur.

Forest Preservation

The application states that only 5 acres of trees are going to be removed, three acres are going to be reforested with a resulting net loss of 0-1 acres. This is clearly a gross underestimate as there are over 100 units, a community center, and swimming pool within the existing wooded area. It appears that a portion of the three acres of 'reforestation' are going to serve in the capacity of a stormwater management area and as a buffer along the property of an adjacent landowner. This is hardly comparable to the existing forest that will be lost. The Nanticoke River watershed is one of the most diverse in the state and requires a more environmentally sensitive design than the current plan.

First of all, housing units and infrastructure within the wooded area (especially within the Bald Cypress community) should be eliminated. The community center and swimming pool should be more centrally located and placed in the non-forested portion of the parcel.

Secondly, trees that should serve as a buffer around wetlands are going to be removed by the current site plan. The application states that there would be disturbance within 100 feet of wetlands, so it is unclear how 10.764 acres of wetlands are being protected. Clearly there should be at least 100 feet of upland buffering these wetlands from the development. This is not only important for water quality, but these uplands provide habitat for wetland dependent species during a portion of their life cycle.

In addition, because of the presence of the species and community listed above, the wetlands and riparian area are within a State Natural Heritage Site. This is one of the criteria used to determine the presence of Critical Resource Waters. The final decision regarding Critical Resource Waters, if this is an issue, will be made by the U.S. Army Corps of Engineers (ACOE). The information above will aid the ACOE in their determination.

Lastly, if large scale clearing occurs despite our recommendations, we recommend that clearing not occur April 1st to July 31st to minimize impacts to birds and other wildlife species that utilize the forest for breeding. Other than along the riparian area, there are no large tracts of contiguous forest in the immediate area and once the forest is cleared or otherwise converted into a “residential woods,” these wildlife species must disperse and try to locate other habitat. This can result in an increase in human/animal conflicts, including interactions on the roadways.

Natural Areas Inventory

The Office of Nature Preserves cannot support the development as proposed. This project contains land listed on Delaware’s Natural Areas Inventory. Natural Areas contain lands of statewide significance identified by the Natural Area Advisory Council as the highest quality and most important natural lands remaining in Delaware. The western section of the site is in the Broad Creek Natural Area. Consideration should be given to protecting these resources during design and construction of this project. To maintain the integrity of the Natural Area, the Office of Nature Preserves urges the applicant to cluster the development, thereby concentrating development to the eastern portion of the site.

Solid Waste

Each Delaware household generates approximately 3,600 pounds of solid waste per year. On average, each new house constructed generates an additional 10,000 pounds of construction waste. Due to Delaware's present rate of growth and the impact that growth will have on the state's existing landfill capacity, the applicant is requested to be aware of the impact this project will have on the State’s limited landfill resources and, to the extent possible, take steps to minimize the amount of construction waste associated with this development.

Underground Storage Tanks

There are two inactive LUST site(s) located near the proposed project:

Hitchens Residence, Facility # 5-000241, Project # S9407151

P. L. Dunbar Elementary School, Facility # 5-000612, Project # S9710151

No environmental impact is expected from the above inactive/active LUST site(s). However, should any underground storage tank or petroleum contaminated soil be discovered during construction, the Tank Management Branch must be notified as soon as possible. It is not anticipated that any construction specifications would need to be changed due to petroleum contamination. However, should any unanticipated contamination be encountered and PVC pipe is being utilized, it will need to be changed to ductile steel with nitrile rubber gaskets in the contaminated areas.

Air Quality

Once complete, vehicle emissions associated with this project are estimated to be 21.0 tons (42,056.1 pounds) per year of VOC (volatile organic compounds), 17.4 tons (34,819.6 pounds) per year of NO_x (nitrogen oxides), 12.8 tons (25,690.6 pounds) per year of SO₂ (sulfur dioxide), 1.1 ton (2,286.9 pounds) per year of fine particulates and 1,759.0 tons (3,517,942.6 pounds) per year of CO₂ (carbon dioxide).

Emissions from area sources associated with this project are estimated to be 8.5 tons (16,963.2 pounds) per year of VOC (volatile organic compounds), 0.9 ton (1,866.5 pounds) per year of NO_x (nitrogen oxides), 0.8 ton (1,548.9 pounds) per year of SO₂ (sulfur dioxide), 1.0 ton (1,998.8 pounds) per year of fine particulates and 34.4 tons (68,764.8 pounds) per year of CO₂ (carbon dioxide).

Emissions from electrical power generation associated with this project are estimated to be 3.4 tons (6,723.0 pounds) per year of NO_x (nitrogen oxides), 11.7 tons (23,384.3 pounds) per year of SO₂ (sulfur dioxide) and 1,724.6 tons (3,449,177.8 pounds) per year of CO₂ (carbon dioxide).

	VOC	NO _x	SO ₂	PM _{2.5}	CO ₂
Mobile	21.0	17.4	12.8	1.1	1759.0
Residential	8.5	0.9	0.8	1.0	34.4
Electrical Power		3.4	11.7		1724.6
TOTAL	29.5	21.7	25.3	2.1	3518.0

For this project the electrical usage via electric power plant generation alone totaled to produce an additional 3.4 tons of nitrogen oxides per year and 11.7 tons of sulfur dioxide per year.

A significant method to mitigate this impact would be to require the builder to construct Energy Star qualified homes. Every percentage of increased energy efficiency translates into a percent reduction in pollution. Quoting from their webpage, <http://www.energystar.gov/>:

“ENERGY STAR qualified homes are independently verified to be at least 30% more energy efficient than homes built to the 1993 national Model Energy Code or 15% more efficient than state energy code, whichever is more rigorous. These savings are based on heating, cooling, and hot water energy use and are typically achieved through a combination of:

- building envelope upgrades,
- high performance windows,
- controlled air infiltration,
- upgraded heating and air conditioning systems,
- tight duct systems and
- upgraded water-heating equipment.”

The Energy office in DNREC is in the process of training builders in making their structures more energy efficient. The Energy Star Program is excellent way to save on energy costs and reduce air pollution. They highly recommend this project development and other residential proposals increase the energy efficiency of their homes.

They also recommend that the home builders offer geothermal and photo voltaic energy options. Applicable vehicles should use retrofitted diesel engines during construction. The development should provide tie-ins to the nearest bike paths, links to mass transit, and fund a lawnmower exchange program for their new occupants.

State Fire Marshal’s Office – Contact: Duane Fox 856-5298

These comments are intended for informational use only and do not constitute any type of approval from the Delaware State Fire Marshal’s Office. At the time of formal submittal, the applicant shall provide; completed application, fee, and three sets of plans depicting the following in accordance with the Delaware State Fire Prevention Regulation (DSFPR):

a. **Fire Protection Water Requirements:**

- Water distribution system capable of delivering at least 1000 gpm for 1-hour duration, at 20-psi residual pressure is required. Fire hydrants with 800 feet spacing on centers. (Assembly and Townhouses)
- Where a water distribution system is proposed for single-family dwellings it shall be capable of delivering at least 500 gpm for 1-hour duration, at 20-psi residual pressure. Fire hydrants with 1000 feet spacing on centers are required. (One & Two- Family Dwelling)
- Where a water distribution system is proposed for the site, the infrastructure for fire protection water shall be provided, including the size of water mains for fire hydrants and sprinkler systems.

b. **Fire Protection Features:**

- All structures over 10,000 Sq. Ft. aggregate will require automatic sprinkler protection installed.
- Buildings greater than 10,000 sq.ft., 3-stories or more or over 35 feet, or classified as High Hazard, are required to meet fire lane marking requirements.
- Show Fire Department Connection location (Must be within 300 feet of fire hydrant), and detail as shown in the DSFPR.
- Show Fire Lanes and Sign Detail as shown in DSFPR
- For townhouse buildings, provide a section / detail and the UL design number of the 2-hour fire rated separation wall on the Site plan.

c. **Accessibility**

- All premises, which the fire department may be called upon to protect in case of fire, and which are not readily accessible from public roads, shall be provided with suitable gates and access roads, and fire lanes so that all buildings on the premises are accessible to fire apparatus. This means that the access road to the subdivision from Old Sailors Path must be constructed so fire department apparatus may negotiate it.
- Fire department access shall be provided in such a manner so that fire apparatus will be able to locate within 100 ft. of the front door.
- Any dead end road more than 300 feet in length shall be provided with a turn-around or cul-de-sac arranged such that fire apparatus will be able to turn around by making not more than one backing maneuver. The minimum paved radius of the cul-de-sac shall be 38 feet. The dimensions of the cul-de-sac or turn-around shall be shown on the final plans. Also, please be advised that parking is prohibited in the cul-de-sac or turn around.

- The use of speed bumps or other methods of traffic speed reduction must be in accordance with Department of Transportation requirements.
 - The local Fire Chief, prior to any submission to our Agency, shall approve in writing the use of gates that limit fire department access into and out of the development or property.
- d. **Gas Piping and System Information:**
- Provide type of fuel proposed, and show locations of bulk containers on plan.
- e. **Required Notes:**
- Provide a note on the final plans submitted for review to read “ All fire lanes, fire hydrants, and fire department connections shall be marked in accordance with the Delaware State Fire Prevention Regulations”
 - Proposed Use
 - Alpha or Numerical Labels for each building/unit for sites with multiple buildings/units
 - Square footage of each structure (Total of all Floors)
 - National Fire Protection Association (NFPA) Construction Type
 - Maximum Height of Buildings (including number of stories)
 - Townhouse 2-hr separation wall details shall be shown on site plans
 - Note indicating if building is to be sprinklered
 - Name of Water Provider
 - Letter from Water Provider approving the system layout
 - Provide Lock Box Note (as detailed in DSFPR) if Building is to be sprinklered
 - Provide Road Names, even for County Roads

Preliminary meetings with fire protection specialists are encouraged prior to formal submittal. Please call for appointment. Applications and brochures can be downloaded from our website: www.delawarestatefiremarshal.com, technical services link, plan review, applications or brochures.

Department of Agriculture - Contact: Milton Melendez 698-4500

The Delaware Department of Agriculture has no objections to the Preserve on Broad Creek application. The *Strategies for State Policies and Spending* encourages environmentally responsible development Investment Levels 1 & 2. This site is a part of a “good recharge” area. DNREC has mapped all ground water potential recharge areas. A “good recharge” rating is the highest rating and designates an area as having important groundwater recharge qualities. Maintaining pervious cover in “Excellent” and “Good”

recharge areas is crucial for the overall environmental health of our state and extremely important to efforts which ensure a safe drinking water supply for future generations. Retention of pervious cover to ensure an adequate future water supply is also important for the future viability of agriculture in the First State. The loss of every acre of land designated as “excellent” and “good” recharge areas adversely impacts the future prospects for agriculture in Delaware.

Right Tree for the Right Place

The Delaware Department of Agriculture Forest Service encourages the developer to use the “Right Tree for the Right Place” for any design considerations. This concept allows for the proper placement of trees to increase property values in upwards of 25% of appraised value and will reduce heating and cooling costs on average by 20 to 35 dollars per month. In addition, a landscape design that encompasses this approach will avoid future maintenance cost to the property owner and ensure a lasting forest resource.

Native Landscapes

The Delaware Department of Agriculture and the Delaware Forest Service encourages the developer to use native trees and shrubs to buffer the property from the adjacent land-use activities near this site. A properly designed forested buffer can create wildlife habitat corridors and improve air quality to the area by removing six to eight tons of carbon dioxide annually and will clean our rivers and creeks of storm-water run-off pollutants. To learn more about acceptable native trees and how to avoid plants considered invasive to our local landscapes, please contact the Delaware Department of Agriculture Plant Industry Section at (302) 698-4500.

Public Service Commission - Contact: Andrea Maucher 739-4247

Any expansion of natural gas or installation of a closed propane system must fall within Pipeline Safety guidelines. Contact: Malak Michael at (302) 739-4247.

Delaware State Housing Authority – Contact Jimmy Atkins 739-4263

This proposal is to develop 274 townhomes on 56 acres, south of Old Sailor Road and adjacent to the northwest border of the Town of Laurel. According to the State Strategies Map, the proposal is located in Investment Level 1 and 2 areas. DSHA supports this proposal because residents will have proximity to existing services, markets, and employment opportunities. Furthermore, the proposal targets units for first time homebuyers. For informational purposes, the most recent real estate data collected by DSHA, the median home price in the Sussex County area is \$250,000. However,

families earning 100% of Sussex County's median income, only qualify for mortgages of \$182,000. We recommend that some of the units be set-aside at this price level, to ensure that working households have access to affordable housing.

Department of Education – Contact: John Marinucci 739-4658

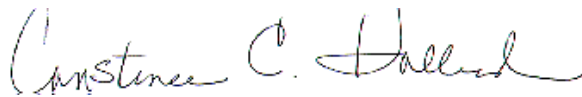
Accommodation of DelDOT and State Fire Marshal requirements for road widths, turning radii and fire lanes will address the needs of school bus access.

DOE requests the developer work with the local school district transportation department to establish developer supplied bus stop shelter ROW and shelter structures, interspersed throughout the development as determined and recommended by the local school district.

Following receipt of this letter and upon filing of an application with the local jurisdiction, the applicant shall provide to the local jurisdiction and the Office of State Planning Coordination a written response to comments received as a result of the pre-application process, noting whether comments were incorporated into the project design or not and the reason therefore.

Thank you for the opportunity to review this project. If you have any questions, please contact me at 302-739-3090.

Sincerely,

A handwritten signature in cursive script, reading "Constance C. Holland". The signature is written in dark ink and is positioned above the printed name and title.

Constance C. Holland, AICP
Director

CC: Town of Laurel